PATENT
Attorney Docket No. 07481.0049-00000

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of :	
Satoshi SUDA et al.	Group Art Unit: 1797
Application No.: 10/584,305	Examiner: VASISTH, Vishal V.
Filed: June 23, 2006	
For: METAL WORKING FLUID	Confirmation No.: 8969

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

DECLARATION UNDER 37 C.F.R. § 1.132

I, Satoshi SUDA, do hereby make the following declaration:

1. My name is Satoshi Suda, and I have received a degree of Doctor of Engineering at Kagawa University in Japan.

2. I am employed by Nippon Oil Corporation, Lubricants and Specialties Sales Department. I have been engaged in the research and development of metal working fluids in Lubricants Research Laboratory from 1990 and 2008, and in Lubricants and Specialties Sales Department since 2008. I am very familiar with the field of metal working fluid oils.

3. I am an inventor named in the above-identified U.S. patent application No. 10/584,305, filed June 23, 2006 ("the '305 application"), and thus have read and understood the specification, drawings, and claims of the '305 application.

4. I have read and understood the Final Office Action mailed in the '305 application on November 9, 2009 from the United States Patent and Trademark Office.

5. I have read and understood the amendments to the claims presented in the Reply to Office Action under 37 C.F.R. § 1.114. I understand that these amendments to the claims are being filed with this Declaration under 37 C.F.R. §1.132.

5. I have read and understood the following references: U.S. Patent No. 6,300,292 to Konishi et al. ("Konishi"), U.S. Patent No. 6,383,992 to Garnier et al., and U.S. Patent Application Publication No. 2002/0035043 to Yokota et al.

6. Given my education and experience, particularly in the area of metal working fluid oils, I consider myself able to provide the following testimony based on experiments conducted by me or conducted under my direct supervision.

COMPARATIVE TESTS

7. The experiments were conducted under standard laboratory conditions.

8. Example Nos. 2 and 3 were prepared to obtain oils in Example Nos. 2 and 3, respectively, as described in Table 2 at page 111 of the specification of the '305 application.

9. Comparative Example Nos. 16-20 were prepared using base oils equivalent to Base Oils C or D in Table 1 of Konishi and additives a, d, and e listed below.

Base Oil A: Base Oil A used in the specification of the '305 application
(High-oleic rapeseed oil having a total unsaturated degree of 0.26)

Base Oil F: A base oil equivalent to Base Oil C in Table 1 of Konishi
(High-oleic rapeseed oil having a total unsaturated degree of 0.25)

Base Oil G: A base oil equivalent to Base Oil D in Table 1 of Konishi
(Rapeseed oil having a total unsaturated degree of 0.47)

Additive a: tricresyl phosphate

Additive b: sulfidized ester

Additive d: chlorinated phophoric acid esters

Additive e: sulfidized mineral oils.

11. The wear test for measuring wear scars as disclosed at paragraph [0254] of the specification of the '305 application was conducted and the wear scar diameter was measured as indicated in the table below.

		Comp. Ex. No. 16	Comp. Ex. No. 17	Comp. Ex. No. 18	Comp. Ex. No. 19	Comp. Ex. No. 20	Example No. 2	Example No. 3
Composition (% by mass)	Base Oil A						95.0	95.0
	Base Oil F	100	95.0	95.0				
	Base Oil G				100.0	95.0		
	Additive a					5.0	5.0	
	Additive b							5.0
	Additive d		5.0					
	Additive e			5.0				
Abrasion resistance (Wear scars [μm])		0.76	0.67	0.65	0.72	0.67	0.60	0.61

12. In Comparative Example Nos. 16-18 and Example Nos. 2 and 3, a total degree of unsaturation of a triester is no greater than 0.3. Comparative Examples No. 17 and 18 contain additives d and e, respectively whereas Example Nos. 2 and 3 contain additives a and b, respectively. Additives a and b are included in the group of sulfur and phosphorus compounds recited in claim 10. Additives d and e are sulfur or phosphorous compounds other than the group of sulfur and phosphorus compounds recited in claim 10. As shown in the table above, Example Nos. 2 and 3 show higher abrasion resistance compared to Comparative Example Nos. 17-18.

10. Comparative Example No. 20 and Example Nos. 2 and 3 contain one of the sulfur or phosphorus compounds recited in claim 10. Comparative Example Nos. 19 and 20 contains Base Oil G wherein a total degree of unsaturation of a triester is greater than 0.3. Example Nos. 2 and 3 contain Base Oil A wherein a total degree of unsaturation of a triester is no greater than 0.3. Example Nos. 2 and 3 show higher abrasion resistance compared to Comparative Example No. 20.

11. Example Nos. 2 and 3, containing both a triester having a total degree of unsaturation being no greater than 0.3 and one of the sulfur or phosphorous compounds recited in claim 10, show higher abrasion resistance, as compared to Comparative Example Nos. 16-20, each of which includes a triester having a total degree of greater than 0.3, or includes a sulfur or phosphrous compound other than the group of sulfur and phosphorous compounds recited in claim 10.

12. In summary, oils containing one of the sulfur and phosphorous compounds recited in claim 10 showed improvement of abrasion resistance compared to oils that lacks of the recited sulfur and phosphorous compounds. In addition, oils containing both a triester having a total degree of unsaturation being no greater than 0.3 and one of the sulfur and phosphorous compounds recited in claim 10 showed improvement of abrasion resistance compared to oils that either has a triester having a total degree of unsaturation greater than 0.3 or lacks of the sulfur and phosphorous compounds recited in claim 10.

13. None of the cited references in the Office Action disclose or suggest using the recited sulfur and phosphorous compounds. The cited references also did not suggest any benefits from using one of the recited sulfur and phosphorous compounds. One of ordinary skill in the art therefore would not have considered particularly using one of the specific compounds recited in claim 10 and predicted improvement of properties in oils for metal working, such as abrasion resistance, as shown in the above

test. Accordingly, it would not have been obvious to one of ordinary skill in the art to select one of the recited compounds.

14. I declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Dated: 9th Feb. 2010 By: Satoshi Suda
Satoshi Suda